RSS-II Assessment Fact Sheet
Report Title: “Assessment of Robotics: Science and Systems II, Fall 2005”

Introduction and Purpose of the Study
This project assessed the first offering of “RSS-II,” the second semester of Robotics: Science and Systems, a two-part class introduced in the spring and fall semesters of 2005. RSS-I/II, a hands-on introduction to robotics, is a largely student-planned, student-led class in which teams collaborate on various aspects of designing and building robots, including both hardware and software. Alberta Lipson of the Teaching & Learning Lab (TLL) assessed RSS-I after the spring 2005 semester; Tom Clay & Associates through its association with TLL assessed RSS-II after the fall 2005 semester. This Fact Sheet addresses the latter assessment.

The assessment’s purpose was to collect feedback that would enable the RSS-II faculty members to (1) understand better what went well in the class and what needs improvement and (2) refine the design of the class for future offerings.

Methodology
Information was collected via (1) interviews and (2) a documentation review. Eight of RSS-II’s 16 students, one of the class’s two TAs and two of the five professors were interviewed in depth. Documentation included all students’ final papers, end-of-semester evaluations, the class website and the student communication and collaboration website (i.e., Wiki).

Summary of Findings
All students interviewed “loved” the class, citing the “real-life experience” it provided; their active, hands-on involvement; and the freedom they had to run the class. They also all reported that they had learned a great deal from the class, citing areas such as robotics theory, programming, managing information, teamwork and “dealing with people.” They also reported frustrations, which they attributed to RSS-II being a new class. In those discussions they identified aspects of the class that, if redesigned, they believed would relieve those frustrations and improve the students’ learning. In addition, they were disappointed with the final performance of the robot they had designed and built.

Of the frustrations they reported, some were beyond the students’ control and involved fixes to the robot’s hardware platform and the systems that supported it; they pointed out that these fixes were already underway. Other frustrations resulted from factors that were within the students’ control but which they did not manage well. For example, they reported that did not work as effectively as they would have liked within or across teams, did not define and develop work process and procedures in a timely manner and in some cases assigned responsibilities in ways that did not fully support students’ learning. These comments revealed mixed feelings by the students about a key aspect of the class’s design – the level of freedom they were given. On the one hand, they cherished it. On the other hand, they wished they had had more direction in key areas. This suggested that the RSS-II professors consider giving the students additional guidance regarding process design and management, working in teams and managing people. The students made a wide range of specific suggestions, from simple coaching to building a management layer – complete with management students from the Sloan School – into the class.